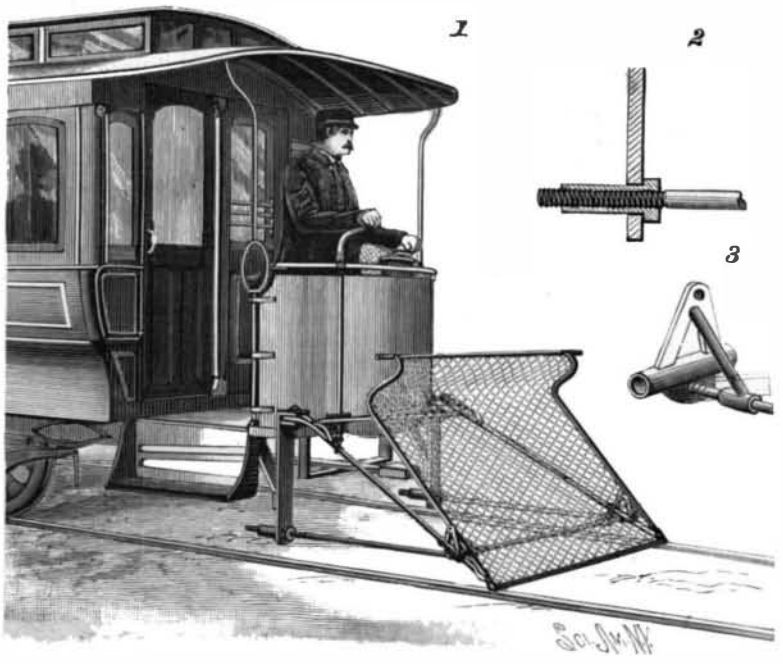
AN EFFICIENT CAR FENDER.

The illustration represents a fender designed to pick up, without danger to life or limb, a person caught in the path of a moving car to which the improvement has been applied. It has been patented by Charles A. L. Du Quesnay (address in care of Canal Bank), New Orleans, La. Two braced standards are attached to each end of the car, the upper end of each standard having ears with vertical pin apertures and its lower end having a rod-receiving aperture. The side bars of an open frame are connected by pins to the upper ends of the standards, and on the lower portions of the side bars are rigidly connected sleeves on which are upper and lower lugs, as shown in Fig. 3, the upper lugs being connected to the lower cross bar of the frame by braces. Pivoted at their front ends to the lower lugs are longitudinal brace rods, whose rear ends are threaded and adjustable by means of sleeve-like nuts, as shown in Fig. 2, in the apertures in the lower ends of the standards, and the front end of the fender frame may be raised or lowered in relation to the roadbed by the adjustment of these nuts. The fender proper, covered with netting, is pivoted near the lower ends of its side bars to the lugs or ears near the front ends of the side bars of the other or supporting frame, spiral springs holding the front end of the fender low down. The rear end of the fender is bent to form a pillow or cushion when struck by the head and shoulders of a person falling upon it, the fender then swinging back upon its pivotal support, and stop extensions of the rear fender bar resting upon cushioning springs on the side bars of the supporting frame. Across the front end of the fender is a flexible strand of solid round rubber, to prevent injury to the limbs of any one struck thereby, the fender being tilted to horizontal position as a body falls upon it, thus raising the front end of the fender high enough to prevent the dragging of a person's feet.



DU QUESNAY'S CAR FENDER.

CURIOUS COLLAPSE OF A BAROMETER.

The highest velocity of the wind and the lowest barometer on record in New York City, for twenty-one years, both occurred during the great storm of Thursday, February 6. As recorded by Mr. Dunn at the local Weather Bureau station, the wind varied between 64 and 72 miles per hour, and it rose at times as high as 80 miles during the fiercer gusts.

The phenomenal fall in barometric pressure was made memorable in the office of the SCIENTIFIC AMERICAN by the collapse of its self-recording barometer—a fine instrument, made by the Draper Manufacturing Company, of this city. Among the many cards taken from this instrument during the nine years that it has done continuous duty, there is only one which shows any approach to the reading of February 6. The card for February 8 of the preceding year shows a reading of 28·60; the instrument at the time of its collapse on Thursday, the 6th inst., recording 28·57.

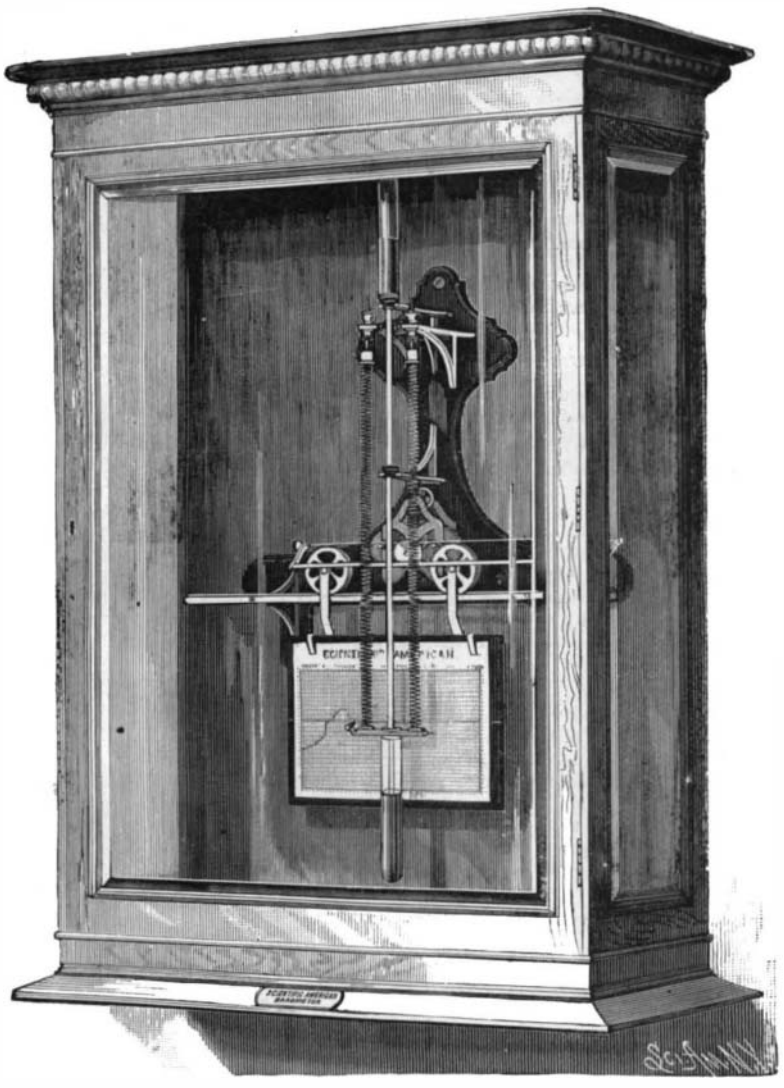
The lowest record at the Central Park Observatory for the past thirty years is 28·42, which was taken at 9 P. M. on February 5, 1876. The occurrence of these lowest barometers on almost identical dates, viz., the 5th, 6th and 8th of February, is noteworthy. The reading, as taken by Mr. Dunn at the down-town observatory, was 28·80; at the Draper Manufacturing Company's office, 152 Front Street, 28·66; at the SCIENTIFIC AMERICAN Company's office, 28·57; at the New York Herald office, 28·55; and at the Central Park Observatory, 28·60.

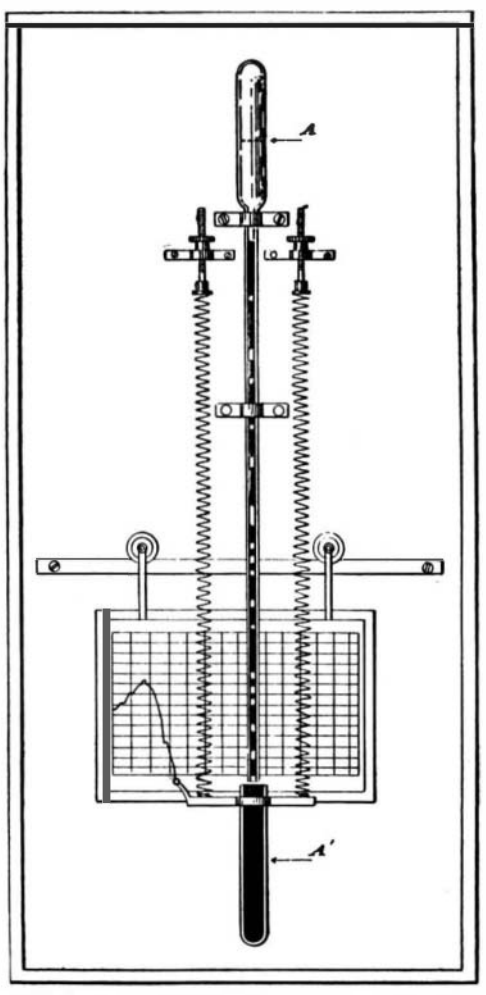
Dr. Draper, of the latter observatory, states that, considering the cyclonic nature of the storm, these readings show a fairly close approximation. Local influences and the vertical oscillations of the barometer in a storm of this intensity produce variations between the readings of different instruments in any one city. Two barometers placed one on the windward and one on the leeward side of a large building would vary in readings, for the reason that on the windward side there would be an increase of pressure resulting from the banking up of the atmosphere by the resistance of the building, and there would be a decrease of pressure on the leeward side resulting from the partial vacuum caused by suction.

We present a cut showing the general features of the barometer in our office and the causes which led to its collapse. It consists of a glass tube about three feet in length, which is rigidly fixed in a vertical position and is provided with an enlarged receiver at its upper end. This tube is filled with mercury, and its lower end, which is open, dips into a tube or reservoir containing the same metal. This reservoir is suspended on two spiral steel springs and has freedom of vertical motion. When the pressure of the atmosphere diminishes, a portion of the mercury flows out of the tube into the reservoir, and this, becoming heavier by that amount, stretches the springs and falls a proportionate distance.

An increase in atmospheric pressure will force a certain amount of mercury out of the reservoir into the tube; and the former will rise proportionately. The fluctuations are marked on a chart by an ink pencil attached to the reservoir. The normal height of the mercury in the tube and reservoir is shown by dotted lines A, A'. In the storm of the 6th inst. the outflow of mercury was so great that the top of the reservoir was carried below the bottom of the fixed tube, as shown in the accompanying cut. At the moment when the contact between the tube and reservoir was broken there was a rush of air to fill the vacuum in the upper bulb of the tube, and this was so great that a portion of the mercury was thrown violently against the top of the tube, breaking it completely off, and letting the mercury drain out of the tube. A similar accident happened to the barometer at the New York Herald office in this city, except that the great fineness of the tube in this case prevented a rush of air and mercury sufficiently powerful to fracture the upper bulb.

The range of these very fine instruments was based upon 30 years' readings, and it was reasonably supposed to cover any possible variations from the normal barometer of 29·96 for this locality.





SCIENTIFIC AMERICAN SELF-REGISTERING BAROMETER BROKEN BY ATMOSPHERIC DEPRESSION ON FEB. 6, 1896.

How Harness Makers Work Leather.

"Place your leather in clean water until it is dampened two-thirds the way through," says Harness. "Then take a piece of burlap and wet it. Wrap the stock in this for six hours, or over night. This process does not soak the leather with water, but simply puts it in a mellow condition, from which it will retain the crease and finish. When taking your leather from the cloth in which it is wrapped, take only that which you can work before it will dry out. You will then take off the top edges (if they are to be taken off), then crease your stock and take off the bottom edges. After this is done lay the stock out on a bench to dry. After it is thoroughly dry, apply a weak solution of sal soda (only strong enough to cut the grease). This may be done with a sponge. Apply the blacking with a stiff brush, rubbing it well. After it has remained in this state for ten minutes, you will give the flesh a coat of tallow (rubbed in well with the hand). After it has remained in this state over night, you will then take a glass slicker and go over each strap with the flesh side up. After this is done, take a coarse piece of cloth and wipe until clear of grease. Leather prepared and finished in this manner will stand the test of water and continual usage, and still retain the crease and finish. There should be great caution used in applying soda, as it is not a good thing for leather, to say the least. In making a custom job I would recommend glass for cleaning the flesh of leather. Leather to be used for folds should be taken down to the desired thickness while the leather is dry, as you will be less liable to spoil them while drawing them through the splitting machine. No strap should ever be creased while it is dry, for leather that is creased while dry will not have a crease on it after it has been used for a short time."

Humidity in Dwellings.

It being granted that humidity in dwellings is the cause of many diseases, the following simple method of testing, which has been suggested by the Lyon Medical, is interesting. It directs that doors and windows of the room must be closed to prevent the entrance of exterior air and that a piece of fresh quicklime should be left in the room for twenty-four hours. It claims that in an ordinary room, if three-quarters of an ounce of water is absorbed by the lime, the room may be considered unhealthy. The amount absorbed is determined, of course, by weighing the lime. Our authority, unfortunately, fails to state the size of the room.